ASL

Australian Society for Limnology Inc

NEWSLETTER

Volume 34 Number 2

June 1996

Registered by Australia Post

Print Post Publication No. PP381667/00125

ISSN 1037-2512

AUSTRALIAN SOCIETY FOR LIMNOLOGY INC.

The Australian Society for Limnology Inc. (ASL) is an association of over 500 people with professional or amateur interests related to Australian inland waters. Since its inception in 1961, the society has played an important role in fostering limnology in this country. The ASL promotes liaison between limnologists in academic, government and private institutions and has a vested interest in the conservation of aquatic and related resources. Annual conferences are held near centres of limnological interest, and the programme includes scientific sessions, field excursions and social activities.

The ASL regularly produces a newsletter with notes on limnological activities, articles of interest, book reviews and announcements of upcoming events likely to be of interest to Members.

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Membership Infomation and a list of the Regional Executive Officers can be found at the back of this Newsletter

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Material for publication in the September 1996 Issue of the Newsletter should be sent to the Editor (see back pages) before 30th September 1996.

Long articles should be forwarded as unformatted text on a disk or via email.

This Newsletter is printed by ETU Publications,
The University of Adelaide.

EDITORIAL

hmmmmm the editor has come under much abuse for lamenting about an unmentionable game that usually occurs in summer..... so no more on that topic. This newsletter has been hastily compiled as I charge around like a hairy goat preparing to head in the direction of the Victoria Falls Conference on "Managing and Monitoring our Precious Resources" (aquatic systems that is!!) - which is to be held at Vic Falls (amazing eh) in Zimbabwe - as a good ASL member I shall remember to write a conference report on my return (and perhaps a Postcard from the Sedge is you are very lucky). Talking of which, in this issue I have made everyone's job easy and included a list (with the Conference Report on Ramsar) of those conferences which will have occurred between now and the printing of the September Newsletter - just in case you forget which conferences you have attended - if you have been to any of them - quick get those fingers to the keyboard.

For this issue I have found an "Issues in Limnology" - our inaugural one!!! Hopefully it shall inspire everyone to hastily reply, either with an issue of their own or via a Letter to the Editor about this first Issue.

OK, see you all at the Berri Congress. Remember Registrations and Abstracts close on 26th July.

DEADLINES FOR THE NEWSLETTER IN 1996

The following are the deadlines for remaining issues of ASL Newsletter Volume 34

Volume	Deadline
Volume 34	
September 1996, *No.3*	30th September 1996
December 1996, *No 4*	31st December 1996

FROM THE PRESIDENT

The ASL is blessed with many wonderful and diligent personalities. One is the Editor of the Newsletter, Fran Sheldon. But I have noted a disturbing recurrence in Fran's Editorials to wax lyric about the health, moral and cultural benefits accruing to those who indulge in cricket, either as spectator or as participant. For her I include a brief piece attributed to Simon Raven, the author of *The English Gentleman*: "sex, although matchless as an occasional diversion, is too ridiculous to be taken seriously, nor should it be allowed to interfere with more stable and satisfying preoccupations such as cricket and the flicks, or [later] horse-racing and books".

A second person deserving of a bouquet is Pierre Horwitz. Pierre has done a marvellous job in producing the Society's Wetlands Policy Document. The small group of wetland afficionados who joined together at the Jenolan Caves meeting to produce this document were ably led by Pierre, who put far more work into the document in its final days than could be expected of any sane person. But Pierre cares about wetlands, and he cares about ASL. The document accompanied Gillian Dunkerley to the most recent Ramsar convention. Gillian was the ASL delegate at this meeting; and a Good Thing it is that we are finally seeing our Society represented at important decision-making functions. (See Gillian's report on the convention elsewhere in this Newsletter.) The document will be circulated to key management groups, government ministers, etc over the next few weeks. Unfortunately we did not have sufficient funds to provide every member with a copy, but contact me if you really want one now. We'll have copies available at the Berri meeting for those who are less impatient.

Alas not all of our membership share Fran's or Pierre's diligence and commitment. Why did only 34 out of our 564 members bother to return the ACF Murray-Darling Basin Survey? What were the remaining 530 members doing? Watching the cricket I guess. We must look bloody pathetic in the eyes of the ACF. Here we are portraying ourselves (and, in fact, being) the major group of professionals capable of commenting incisively on the state of rivers and wetlands in the M-D Basin, yet only 6 % of our membership can get off their backsides to fill in a 2-page survey. And why do we still have only 23 members willing to nominate themselves as volunteers to speak as experts on behalf of ASL (see page 40 of the March Newsletter)? And if the blankness that stares out at me from page 42 of the same Newsletter is any indication, apparently not a single ASL member has published a single paper on a limnological issue in the past three months. Maybe the miscreants will be able to redeem themselves by giving serious thought to the two main issues facing us as a Society at the Berri meeting:

- what is the future we want for ourselves as a Society, and
- what about this idea of an ASL Fellowship scheme?

Now to return to another stalwart of the Society: Sam Lake. Sam has been afflicted with a serious illness recently. Thank goodness that he is now making a good recovery. May I wish, on behalf of all of ASL, Sam the very quickest and fullest return to health. We all want to see Sam's smiling face, devastating intelligence and mischievous antics at the next ASL conference. Get well Sam!

Paul I Boon

PRATTLEBUT, SCUMOUR AND RUTTLE

NEW SOUTH WALES

CSIRO - Water Resources - Griffith

from: Shaun Meredith

As aestivation turns to hibernation in Griffith, the final reports and publications from summer samplings are being produced quicker than you can say "more funding is required".

Jane Roberts' group has been busy producing an oral history of the Lachlan River entitled "Listening to the Lachlan". This is just about to go to the printers and features worthy quotes from people on the Lachlan, cameo drawings by resident carptoonist **Brendan Ebner** and mug-shots of landholders by **Geoff Sainty**. **Jane** hopes it will be a pleasing piece of popular 'ecology and history' for river ecologists.

In report writing events, **Shaun Meredith** has submitted his M.Sc. thesis (YAY) and is currently working on a final report for the MDBC on the use of waterplants (NOT weeds) in irrigation drains to intercept nutrients. Both he and **Jane Schuette** gave talks at the recent highly successful food and wine festival in Albury (a.k.a "National Workshop on Sediment Nutrient Interactions"). Jane S, a native of Michigan?? spent most of her scientific life in the U.S. and some time in Denmark working on nutrient uptake by waterplants. She joined us here in Griffith as a post-doc to work on the 'Macrophytes as Indicators' project, and has been doing pond experiments ever since. She is currently grappling with the intricacies of both Rugby league and union. It is unlikely that she will ever watch another game of cricket.

Meanwhile, **Jane Roberts** is busy galavanting around the country on 'expert panels', carping about carp, 'phyting' over waterplants and trying to work out Windows '96.

Apart from consulting activities as National Algal manager for ARMCANZ, **Gary Jones** is managing to find the occasional minute or two to do some science. The LWRRDC-NRHP "Setting target flows for the control of cyanobacterial blooms" project with **Philip Orr** and **Maxine Davis** is progressing well, with sampling due to finish at the end of June. Weekly or fortnightly samples have been collected at 31 (mostly weir pool) sites across Australia for the past 18 months. The aim is to extend the results from the NRMS-funded Murrumbidgee Project at Maude (with CSIRO CEM and MDFRC) to rivers across Australia. The main finding of the Maude study was that flow and turbulence, or the lack of it to be precise, were the major factors determining the onset of cyanobacterial dominance. For those who are interested, the final NRMS report on the Maude study should be available for circulation within the

next month. **Ian Webster** will speak on the final management recommendations of the project at Berri. A large study on cyanobacterial blooms in reservoirs of SE Queensland (with QDNR) has been completed - **Gary** will talk about this work at Berri, while avoiding talking about the demise of the Collingwood football club.

Gary also attended a reportedly "excellent" conference in the UK in March titled "Ecological basis for lake and reservoir management". The most notable aspect of the managerial process in Europe is the extensive usage of biomanipulation as a routine tool to augment (not replace) nutrient management for algal control. A number of apparently successful case studies were reported from England, Ireland, Denmark, and the Netherlands.

Philip Orr is finishing off a study on nitrogen regulation of microcystin content of Microcystis aeruginosa, before starting a new project on "cyanobacterial toxins and food chains" with **Gary**, **Peter Fairweather** and **Denise de Paoli**. Gary's long time right hand woman and laboratory wizard, **Cheryl 'the enforcer' Orr**, has had enough of cyanobacterial work, and is embarking on a new career studying invertebrate ecotoxicology with **Peter Fairweather** and **Gillian Napier**. **Kathy Walsh** (U. Newcastle) has submitted her Ph.D thesis on "Biochemical characterisation of photo-oxidative damage to Microcystis aeruginosa", and is off to Canada to take up a post-doctoral fellowship studying UV damage to marine phytoplankton. Ph.D. student **David Bourne** (UQ) is busily writing up his thesis after completing his research work on the 'Biochemistry and molecular genetics of microcystin degradation by an aquatic bacterium'. Worthy of note is that David realised upon arrival in Narrandera to play a game of rugby union that he had left the teams guernseys on his living room table in Griffith. A day of low popularity and team imposed power drinking ensued, from which Dave is still recovering.

Another winter in Griffith has been too much for **Carl Pender**, who has moved to the positively tropical Bendigo to take up a position with the Army as a????. Carl's abilities with computers and electronics are sorely missed, as is his unfailing and enthusiastic attendance and at any social function. We all wish him all the best for anything he does in the future.

University of New England

from: Michelle Casanova

Things have been busy in the photosynthetic end of the world (Botany Department). **Margaret Brock**, **Michelle Casanova**, **Jill Divola** and **Chris Cooper** had a trip collecting dirt at the Macquarie Marshes in April (quiz: how do you pronounce Buckiinguy?) where we caught up with **Greg Brereton** (DLWC), **Pip Brock** (CMC) and **Trish Waters** (NPWS) out in the Marshes. Lots of travel on dusty roads, lots of talk about the Marshes, a bit of work collecting seed bank samples and excellent catering from **Jill** and **Chris**! The disadvantage of having local field sites is that you

don't discover the hidden talents of your co-workers! Next stop was Dubbo, where we had a guided tour of the Western Plains Zoo constructed wetland (you have to do something with elephant poo) by **Jen Shearing**, who supervised the building of it. An excellent facility. We've kept pretty much at home since then. **Margaret** is busy writing her new Aquatic Botany Unit, as well as preparing the 200-level Aquatic Ecology unit for external offering with **Andrew Boulton**. **Steve Skinner** finds time to collect desmids from local lagoons. His expertise means that we might become familiar with those little green things yet. **Michelle** has been buried in charophyte lore again as she prepares to go to the second conference of the International Research Group on Charophytes in Wisconsin, stay tuned for the latest exciting news about charophytes in the next edition. Apart from finalising last summers experiments and preparing for next, we all tend to keep the wheels turning here. **Geoff Smith** has been keeping out of trouble writing papers and thesis, he calls in to remind us he's alive and deposit chapters with **Marg**. We are looking forward to the Intecol Wetlands meeting in September, followed by ASL, see you all there.

Up there at the Animal end (Ecosystem Management) **Andrew Boulton** just returned from an enjoyable hyporheic-infested NABS in Montana, having spent some days idling on the shores of Flathead Lake and heading up to Glacier NP to have his photo taken hugging a grizzly bear. He also spent a week in Oklahoma (including braving the bison of the Tallgrass Prairie Reserve to collect hyporheic bugs from Wild Hog Ck) followed by a week in Chicago watching the baseball and ducking the bullets when the Bulls won the NBA. Now he is paying for his jaunt with piles of marking. The substantial floods in northern NSW in May wrought havoc with many student projects - numerous sediment traps and leaf packs are now rotting in the Pacific Ocean. However, **Sandra Grinter** was able to take advantage of the floods to determine the movement of wood at her study sites. **Sue Botting** is refining her PhD project examining nutrient dynamics in riparian zones and **Kim Jenkins** has commenced the "big flood" experiment in three different tub sizes across lakes of different flooding frequencies with sediments from upwind and downwind regions. To hear more, you will need to go to her talk at Intecol in Perth in September.

Charles Sturt University

from: Michael Healey

CSU has been fortunate to have been visited by **Prof. Bill Williams** (University of Adelaide), **Dr Vladimir Matveev** (Murray-Darling Freshwater Research Centre) and **Dr Jane Schuette** (CSIRO Div. of Water Resources, Griffith). Each of these visitors gave guest lectures to the 3rd year Environmental Science students who were studying aquatic biology. Undergraduates, postgraduates and staff at the University greatly benefited from the interaction with these visitors. **Dr Robyn Watts** is continuing her ARC funded project on bony bream Nematolosa erebei in the Murray-Darling Basin. Robyn and two technicians, **Martin Asmus** and **Jamin Forbes** have recently spent two weeks collecting bony bream specimens in the field. This research project will

examine the level of genetic differences among populations of this species from sites throughout the Murray-Darling Basin. **David Roshier**, a new PhD student with **Prof. Alistar Robertson** has begun some exciting research examining spatial and temporal variability in Australian arid zone wetlands with particular reference to water-bird populations. **Lorraine Hardwick** has been keeping busy analysing her data with ANOSIM and SIMPERS. **Pat Murray** has been busy studying the dispersal of Hydropsychids within and between catchments using allozyme electrophoresis and also the implications of sedimentation and its effect on this Trichopteran family. **Michael Healey** is about to begin his Honours studies (part-time) investigating the impact of cattle and fish predators on amphibian populations in wetlands. **Dr David Lamb** is analysing data acquired from a Murray River airborne video survey, between Albury and Swan Hill. He is attempting to improve accuracy of generated synoptic turbidity profile by applying time-of-day and haze corrections to data. His results are very encouraging. **David** has also completed another survey flight from Narrabri to Bourke (via Namoi, Barwon and Darling rivers) to test this approach under higher turbidity levels. David's Honours student, **Evonne Packer**, has commenced a project involving the evaluation of a potentially more powerful method of estimating water quality from the air than the airborne video.

Australian Water Technologies (EnSight)

from: Jane Growns

Simon Williams and **Colin Besley** and helpers sampled macroinvertebrates at nearly 50 sites, mostly in the Sydney region in March and April. This was part of an ongoing, long-term project to determine whether the macroinvertebrate community health changes over time and/or is related to sewage effluent inputs. For the first time they were able to sample sites in the Shoalhaven and Manning systems as reference sites for the fluvio-tidal section of the Hawkesbury-Nepean. As a result of a computer glitch, **Simon** and **Colin** have developed a new classification scheme for sewage-impacted streams: we now have goo sites, poo sites and very poo sites! **Simon** has also been organising a survey of aquatic dependent species biodiversity in Western Sydney. **Colin** has been organising a study to look at the effects of coal mine discharge on macroinvertebrates in the Hunter Region. **Cathy Cantwell** has completed a report on macroinvertebrates and sediments in the Wollondilly system. **Ivor Growns** has been analysing data for his environmental flows project and has been applying chaos theory and fractals to the problem - ask him about it if you want, I don't understand it! **Paul McEvoy** and **Bruce Chessman** have completed the LWRRDC project on developing SIGNAL for specific types of disturbance and are now preparing a manuscript for publication. **Paul** and **Jane Growns** have been finishing the final report on water quality and macroinvertebrate communities around Picton. There are now 4 years of data which have enabled us to look at seasonal and interannual variability. **Bruce Chessman** and **Jane Growns** have been producing papers on comparisons of different picking methods for rapid assessment and further developments to SIGNAL. Along with **Marcus Scammell** they have also designed a study to look at the effects of

sewage overflows on freshwater and estuarine systems in Sydney. Quite a tricky problem considering the many other impacts on the biota and the difficulty of finding reference sites which don't have sewage overflows on them. **Pete Swanson** is still doing his impression of 2 people, organising the autosampler monitoring of water quality in Sydney's catchment areas. **Brendan Atkins** has been liaising with ACF on their project to replace a concrete channel in urban Sydney with a wetland and 'natural' channel. **Brendan's** part of the work is for monitoring of water quality and macroinvertebrate communities. **Lisa Silva** has been investigating the performance of one of the artificial wetlands built in the Rouse Hill Development Area. **Dave Holleley** has been hiding in the microscope room and is now training **Monica Mulder** to mount chironomid larvae. I don't know how we're going to cope with the little buggers now that **Rod Hardwick** has left for an overseas jaunt. Rod will no doubt be looking for work on his return - anywhere but Sydney!

VICTORIA

Museum of Victoria

from: Richard Marchant

The CRC for Freshwater Ecology project that has employed **Alastair Hirst** for the last 18 months finishes on June 30. **Alastair** together with **Richard Marchant** and **Richard Norris** has been analysing macroinvertebrate data from reference sites in Victoria (courtesy of the Vic EPA) in order to construct preliminary predictive models of the stream communities. Currently **Alastair** is re-doing the tables or figures he re-did yesterday as the three of us try to get the work into shape for publication.

Genevieve Hehir has been valiantly tackling samples pulling out *Agapetus* caddisflies as part of one of the Flowing Waters projects within the CRC. She and RM have been denuding the Acheron and some of its tributaries over the summer in order to calculate *Agapetus* growth and production.

La Trobe University

from: Gerry Closs

The Department of Environmental Management & Ecology continues to grow with the addition of **Phil Suter** who has signed up as a lecturer. He has coped remarkably well with his first semester of teaching - he even seemed to be enjoying himself much of the time. **Phil's** experience and skills in river ecology and management has been a particularly useful addition to the Department and he quickly found himself roped into teaching in quite a number of different courses. **Phil's** just back from a trip along the River Murray on an expert panel assessing management problems.

Trude Hotzel is just completing a three-year project on "River Murray phytoplankton - the role and population dynamics of the dominant alga *Aulacoseira granulata*" with the final report being written and the first publication already out in the Archiv fur Hydrobiologie Vol 136/2: 191-215. Two further papers are in preparation on the variation in cell size of *Aulacoseira granulata* in the River Murray over a five year period and the relationship between biomass and nutrient conditions in the river. When staring at the screen gets too much she swaps over to the microscope to count and identify all those little algae from the first three field trips along the local streams. Considerable differences in phytoplankton composition between rivers are apparent.

Gerry Closs has completed the first phase of fish sampling in the spatial and temporal dynamics of billabong communities on the Ovens River Floodplain. Rapid recolonisation of dry billabongs occurred during winter flooding. Clear differences in fish species composition and the population structure of abundant species could be observed when comparing bongs that either did or did not dry out over the previous summer. For a full report you'll have to go to the Berri Conference.

New fishy postgraduates have also continued to join the fish-invertebrate team. **Dale McNeil** (formerly at Monash Uni) has started a Ph.D. examining the relationships between fish distribution and oxygen, temperature and pH on the Ovens River floodplain. The project will have a major focus on examining respiratory capacity in different species of fish and their association with environmental parameters and distribution.

Steve 'Harry' Balcombe's project on relationships between fish, macroinvertebrate and macrophyte density is progressing well. He's actually out sampling at this very minute in his shiny new wetsuit in 8°C water and no doubt loving it. Clear relationships between fish, macroinvertebrate and macrophyte density are evident. Densities of fish and maroinvertebrates are also clearly influenced by sudden changes in billabong water level associated with changes in the level of the nearby Murray River. Macroinvertebrate densities increased by at least an order of magnitude when water levels fell in April at the end of the irrigation season.

Michael Shirley (now of Monash Uni. but still working up here) has finished his field work. He now a an extremely impressive data set of two years fish data and the results of a huge field experiment to crunch through. Have fun Michael!

Lor-Wai Tan has completed three sampling runs examining the distribution of testate amoeba on submergent macrophytes (*Vallisneria*). Marked changes in community composition of testates are evident over very small spatial scales over the surface of the leaf. These changes may be either due to changes in phys-chem conditions or community succession as the new leaf grow towards the surface. A summer experiment is currently being planned to determine which is occurring.

Honours students have finished and started. **Jason Lieschke** completed a study of Australian smelt and zooplankton dynamics. His results suggested that smelt may be having a marked impact on zooplankton community structure in billabongs. Calanoid copepods, the dominant component of the billabong zooplankton, were rarely found in the diet of smelt. In contrast, various species of cladocera formed the bulk of the diet of smelt yet were only occasionally abundant in the zooplankton. Zooplankton subjected to heavy predation by smelt either remained permanently in the deeper water or only migrated to the surface at night. In contrast, Calanoid copepods showed no marked diel vertical migration and were abundant at all levels. **Tim Curmi** has completed his study of habitat use in river and two-spined blackfish. In areas of sympatry, the two species clearly partition their habitat use with river blackfish preferring slower, deeper water and two-spined blackfish occurring in the faster, rocky areas. Both **Jason** and **Tim** received H2A results for their efforts.

New students: **Fiona Betts** has commenced a project on habitat use and grazing by shrimps. Initial results suggests a very strong relationship between *Paratya* abundance and weed density, and that grazing by shrimps has a marked effect on periphyton composition and macroinvertebrate community structure on macrophyte stems. **Matt Jones** has been examining the relationship between wood debris density and complexity and gudgeon abundance. Gudgeon abundance is clearly related to the abundance and complexity of woody debris.

NORTHERN TERRITORY

Northern Territory University

from: Michael Douglas

NTU is raising its profile on wetland issues with the recent formation of the Centre for Tropical Wetlands Management. The Centre aims to provide a mechanism and forum for the co-ordination of research activity in wetlands management in the Northern Territory. The Centre will conduct, promote and support collaborative research activity involving NTU, Commonwealth and Territory Government Departments and industry; and will undertake award and non-award training/teaching relating to wetlands. As well as providing new research opportunities, the Centre will enhance the activities of the NTU's existing research groups in environmental chemistry, aquaculture, remote sensing and GIS and wetland biology. The enthusiastic Director of the new Centre is **Greg Hill**, Professor of Environmental Science, who joined NTU last year from University of Queensland. The founding partner in the Centre is the Wetlands Research Unit within the Environmental Research Institute of the Supervising Scientist (ERISS) headed by Dr **Max Finlayson**. We are all looking froward to greater emphasis on wetlands research at NTU.

For more information contact: Professor Greg Hill, NTU, Darwin, NT 0909,
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Water Resources Division,
NT Power and Water Authority

from: Jane Suggit

Monitoring River Health project is again in full fieldwork swing. It never ceases to amaze us how many magnificent spots there are in the Top End (this isn't a tourist commercial). Recently we visited the Waterhouse River where in one giant escarpment pool there was a veritable "flotilla of freshies". Two silly macroinvertebrate people were then watched scraping away at a sand bed by at least two dozen pairs of beady eyes and wet snouts. The truth is, there is nothing quite like rolling your swag and mossie net out at night in Arnhem Land and being serenaded to sleep by the distant 'barking' of the freshies, the water slapping of hungry barramundi and the braying of a hundred feral donkeys. **Lynne Powell** who is currently working on a water quality report of the Mary River catchment recently came face to face with a group of angry landholders who were bent on venting their frustation about government departments and their neverending studies of the Mary River region. Fortunately **Lynne** has decided not to change her career as a result of the attack and is busily preparing for another face-to-face with a larger group of Mary River stakeholders at an Open Day on Water Quality. Well it's been a long haul with the first draft of the Darwin Harbour report to be produced by **Armando Padovan**. But with the days ticking past **Armando** set himself a deadline of his wedding day in Broome as the cut-off date - crazy man! Congrats AP and **Justine**. **Kate Gowland** our ex-NT Waterwatch Facilitator who is now the National Facilitator has been voted "the woman you thought you could get rid of but can't". Her reason this time for a return trip Canberra-Darwin is to be on the interview panel for the appointment of the new NT Waterwatch person. Yeh, yeh **Kate** we really believe you. **Steve Sly** who has been acting in the position organised a successful Waterwatch Co-ordinators Workshop. However we are slightly concerned about the choice of Waterwatch Co-ordinators for the NT program. Recently **Gerry Wood**, who heads up one of the groups, made the front page of the Litchfield Times wearing only a 44-gallon drum as a promotion! Other news - **Mike Lawton** our new illustrious Branch Head seems to be getting more and more bogged down with beaureacratic you know what. I suppose it comes with the job. And **Simon Townsend** has been gracing the WQ Branch with his presence once a week in between his PhD study leave. His first paper from his thesis, on the limnology of Darwin and Manton River Dams, is in press at the moment with the J of Freshwater Biology. He's pretty excited.

Environmental Research Institute of the Supervising Scientist

from: Lisa Thurtell

Since the announcement of the Senate Inquiry into Uranium Mining in Australia there has been lots of frantic activity around ERISS. **Chris Humphrey** and **Bob Pidgeon** are behind most of this, with **Ruth O'Connor** directing the macroinvertebrate traffic and **Bill McFarlane** up to his ears in fish data.

Uni of New England honours student, **Neil Tripodi**, has left these warm climes to winter in Armidale, taking most of Magela Creek with him. Fortunately we've been blessed by another honours student, **Marcus Stowar** from the University of Canberra, who has the arduous task of looking at the effects of suspended solids on stream biota downstream of a road crossing on Jim Jim Creek. Needless to say he doesn't have to ask twice for help in the field.

Biological monitoring is also recovering from a hectic sampling period which saw only one vehicle requiring unbogging (good one **Ruth**!). Well done to the billabong samplers who came up with some ingenius ways of sampling billabongs without actually entering the water. Unfortunately the arrival of the Ok Tedi Technical Officers (part of a technical officer exchange) has been delayed so we will have to wait a little longer to lie about dimensions of wetlands and quality of beer.

The 'whole-effluent' toxicity tests on Mount Lyell mine effluents (part of the Mount Lyell Remediation Research and Development Program) is underway. **Shelley Templeman** is currently at ANSTO in Sydney carrying out the tests, thankful of the change of venue from chilly Queenstown.

Still in the Ecotox realm, we have just farewelled **Verena Pfeiffle**, a Masters student with Stirling University, Scotland. **Verena** has spent the last few months with ERISS testing the toxicity of the pesticide Tebuthiunon (used for Mimosa control) on non-target aquatic biota (hydra and purple-spotted gudgeon). **Verena** managed to finish her write up while at ERISS but there are reports that sleep deprivation took its toll.

Climate change is looming large on the wetland agenda. A cast of thousands (including **Ben Bayliss, Ray Hall, Max Finlayson**....) completed a report on the vulnerability of Kakadu's wetlands which aimed to develop a monitoring framework for assessing change on the ARR floodplains and identify management reponses. Following from that report it has been recommended that a geo-referenced survey grid be provided across the floodplains and the selected monitoring projects with other agencies be initiated. This will include guidance for possible changes to Ramsar guidelines for the interpretation of ecological change on wetlands.

Max Finlayson and **Kym Brennan** are currently involved in a management plan for Ramsar sites in the Kimberley region of WA. **Kym** is on a fact finding mission at this

moment, determining the management status of existing and proposed Ramsar sites in that region.

Last (but by no means least), **Nunzio Knerr** has been busily collecting seed bank data from the Magela floodplain and vastly improving on previous techniques. **Nunz** (as he is affectionately known) has all but finished collecting seeds and is about to reveal all on the condition of the Magela floodplain and the invasion of exotic species.

SOUTH AUSTRALIA

University of Adelaide

River Murray Lab

from: Adrienne Burns

We all ventured up to Berri for "Unravelling the Murray Mysteries" run by DENR early in June. **Keith Walker** introduced the day discussing the effects of the weirs on the river in general. Talks by **Fran Sheldon**, **Stuart Blanch**, **Adrienne Burns**, **Lorenzo Villizi** and **Jim Puckridge** followed, including topics from the littoral zone of the Darling, to the potential for time share flooding arrangements in the Murray.

Honours student **Marielle Janssen**, filled up the Lab with organic matter, some of which was smothered in fungicide prior to a grand shipment into the river near Murray Bridge. **Sue Graham** continues numerous experiments on *Physa acuta*, to see the limits of these "super snails".

Stuart Blanch has been up to his waist in clay monitoring the effects of turbidity and light attenuation on the growth of *Vallisneria spiralis*. It is sure to rain whenever he is in the ponds.

Lorenzo Vilizzi is currently writing up the results on age and growth of carp. He can now reliably determine the age of 'wild' carp using otiliths, and is further examining this method in monitoring population dynamics. Application of this work will be to curtail recruitment based on relationships between carp growth patterns and patterns of flooding.

Adrienne Burns has spent hours slaving over past and present water level records for the lower Murray to model changes in the light climate of the river since regulation. As light is a major factor determining algal growth, this model may help allucidate the process by which biofilm metabolism has shifted from heterotrophy to autotrophy.

Fran Sheldon (who is based in the Zoology Department as a Visiting Research Fellow while working on the Barwon-Darling Environmental Flows project) and honours

student **Cathy Francis** are getting to know the road between Adelaide and Wilcannia intimately as they prepare to head off on their fifth field trip since Christmas. Cathy is looking at redgum leaf and bark decomposition *in situ* in the Darling River at Wilcannia - while battling the sequence of floods that threaten to wash her leaf packs away. In the lab (away from the floods) she is measuring dissolved carbon release from redgum leaves subjected to different flooding and drying regimes with the aim of modelling potential DOC release into the Darling River during floods of difference magnitudes and heights.. **Fran** is still processing the ever-increasing pile of leaf litter samples collected from litter traps on the Darling.

Botany Department

from: Kerri Muller

We have a new Ph.D. student - **Karen Westwood** - working on algae in the Murray River. **Karen** graduated with Honours from University of Tasmania where she studied possible effects of eutrophication on algal growth in the Derwent Estuary. Her project here will be along similar lines. She has had her first taste of field work and is still bragging about her drinking prowess - so her first Limno girls night is planned to determine whether she really can drink me under the table. **Sean Geary** is about to embark on a transition from my work on *Microcytis* to *Anabeana* which should prove more challenging due to their filmentous nature. The third member of our algal team - **Justin Brookes** - is starting some new work using the flow cytometer to determine the effects of limiting nutrients on a range of *Microcystis* growth parameters.

Stuart Blanch - as I write - has donned his wetsuit and leapt into the balmy July waters of the Botany Ponds. His experiment examining the effect of water turbidity on *Vallisneria* performance is drawing to an end. **Marcus Cooling** is 'loving it'. **Sean White's** first set of experiments on pressurised gas flow in *Phragmites* and *Typha* are going well - he has primarily been interested in the relationship between cross sectional area and flow rate and now is looking towards some field work. **Kay, Michelle** and **I** are in the throws of organising our post-congress constructed wetlands tour. I am also gearing up for a seminar which is designed to get over my severe case of the 'two year blues' and rev me for the final year. Great commander **Ganf** has just finished teaching another 3rd year class of up-and-coming limnologists. **George** is also getting together an appraise of all the work we have done at Bool Lagoon over the years for INTECOL in September.

Australian Water Quality Centre
(a business unit of the SA WATER Corporation)
based at the Bolivar Laboratory

Aquatic Ecology Report (from Peter Schultz)

Many of you will have heard that **Peter Goonan**, who left our MRHI team to take up **Phil Suter's** old position as freshwater biologist in the south Australian EPA, was unlucky enough to be side-swiped by a truck while travelling from here at Bolivar to the EPA. The resulting roll over placed him in the up-lane of an 80 kph highway where he was hit again. He somehow survived and is on the mend now returning to work on a resticted basis. **Chris Madden** has carried on MRH alone but this will change within a fortnight with the appointment of Peter's replacement.

Jan Dearden has been appointed to a position in the Algal Research group assisting **Peter Baker**. For the AWQC project team it is a time of year when old projects reach the reporting stage and sample processing takes a back seat. Meanwhile new projects keep appearing and we are very busy. The next holiday will be Berri when we hope to see as many ASL people as possible.

WESTERN AUSTRALIA

Murdoch University.

Aquatic Ecosystems Research

from: Phil Papas and Jenny Davis

Megan McGuire has joined the Aquatic Ecosystems Research Group as an Hounours student. **Megan** commenced in March 1996 and is looking at Aboriginal use of Swan Coastal Plain wetlands in both traditional times and present day, focusing on utilisation by Nyungars in the past and implications for future management.

Frederick Bouckaert has finished his honours on near-bed flow regimes in streams and rivers and is now writing up some of his findings for publication. Recently he has been carrying out a study into the recolonisation of benthic fauna in a section of the Swan River where polluted sediments were replaced with a clean substrate, with the help of **Tresslyn Smith** who just completed her honours on the benthic fauna of the Avon River, and **Melita Pennifold** who is still busy sorting through her benthic samples from the Swan.

Kerry Trayler has just returned from North America and England, (just) squeezing in the North American Benthological Society (NABS) conference held in Kalispell, Montana. **Jenny Davis** also attended the conference and presented a paper co-authored with **Frederick**. Whilst in the US Jenny also enjoyed catching up with former

colleagues from the Centre for Water Research, at the University of Western Australia, **Dr Stephen Monismith**, at Stanford University and **Dr Geoff Schladow** at UCLA (Davis). NABS this year was apparently the largest ever with approximately 850 registrants. A wide range of topics were covered and although the quality of talks varied enormously the very best papers were excellent. For some reason when I (JAD) have travelled half way around the world to attend a conference I expect every paper to be a good one and so am always amazed to find that some are not! The emphasis at NABS this year seemed to be on ideas-an interesting contrast with recent ASL conferences where discussion of ideas has often been lost in the defence of experimental design and stats. Both **Mike Winterbourn** (Christchurch) and **Ian Campbell** (Monash) demonstrated that humour and good data sets are not mutually exclusive. Overall a conference that was definitely worth attending in a very scenic part of the world.

Monitoring River Health work for the universities has concluded for the moment and **Phil Papas** is running two short term concurrent contracts one of which involves identifying invertebrates from southwestern Australian estuaries.

Lorna Charlton has placed her PhD on hold for a short while due to the Mazzucato family's recent addition, baby **Lauren**. All are doing fine.

NEWS FROM THE CRC'S

CRC FOR FRESHWATER ECOLOGY

A baffling experiment!

Discovering the effects of flow variability on the abundance and diversity of stream invertebrates at sites in the Acheron, Steavenson and Little rivers near Marysville, Victoria was the aim of an experiment conducted recently by a team from the CRCFE's Flowing Waters Program (based at Monash's Department of Ecology and Evolutionary Biology).

The honeycomb-shaped mesh that is used to achieve uniformity of flow in hydraulic engineering flumes inspired the design of the "baffles", which are made from plastic mesh. The baffle design was tested in flumes at Melbourne University Dept of Civil Engineering before being developed for use in the field.

Baffles, which affect the flow in the river just immediately downstream of them, were secured in the river in a randomised design. They produced a micro-environment where aquatic animals experienced a slower, more even flow regime than in other parts of the stream.

Invertebrate samples taken from bricks placed immediately behind the baffles were then compared with those taken from parts of the stream that experienced the full variation of flow. Substrate disturbance was also varied, given that this is the natural outcome of variable flow. All bricks were secured with pegs and throughout the experiment, half were subjected to variable disturbance rates while half were not disturbed.

The natural flow variation in the river during the course of the experiment was considerable. Three spates hit the study sites during this time and the river dropped to low levels in between these periods.

This experiment, which is part of the *Flow Variability, Habitat Patchiness and Diversity of Stream Communities,* was novel in its approach for it examined the effects of changes in variability, rather than changes in means. And after all: *"Variance is the music of Ecology"* (Simberloff).

Those involved in the summer field extravaganza were: Alena Glaister and Angus Webb; Dr Sam Lake, Barbara Downes and Richard Marchant, Nick Bond, Leanne Matheson, Michael Sinclair and Keith Ferdinands.

Expert Panels on the River Murray

Terry Hillman, Martin Thoms and Jane Roberts spent a week on the River Murray as part of an expert panel which was put together by the Victorian Department of Natural Resources and Environment to provide advice on environmental flows in the river.

The study, commissioned by the Murray Darling Basin Commission, was aimed at identifying and resolving issues associated with last year's decision to cap diversions from the river by June 1997.

The project objective was to identify changes in river operations for the River Murray and Lower Darling that should result in general improvements in the environmental condition of these river reaches while considering the current needs of existing water users.

The panel travelled from Dartmouth to Mildura during the week. During September they will spend another week on the river looking at the section from Mildura to Terminal Lakes. A workshop will be held later in the year where the panel will develop a series of management recommendations.

Condamine-Balonne

The CRC was well-represented on a technical advisory panel which was assembled by the Qld Department of Natural Resources to provide advice on environmental flows in the Condamine-Balonne River.

Martin Thoms, Craig Schiller and Fran Sheldon were involved in the six-member panel which spent four days last week looking at the river and determining a strategy for environmental flows.

AWWA Award for Excellence in Urban Water Management

Joint Program Leader for Urban Water Management, Ian Lawrence, has again been honoured for his contribution to improving water quality in the ACT.

The ACT Branch of the Australian Water and Wastewater Association recently presented Ian with the Reg Goldfinch Award for excellence in water management in the ACT.

Earlier this year, Ian received the Public Service Medal (announced in the Australia Day Honours List) for his contribution to the improvement of water quality in ACT lakes and streams.

A well-recognised name within the Canberra water industry, Reg Goldfinch was the principal engineer responsible for the design and construction of Googong system and

Lower Molonglo Water Control Centre. Reg is now working on major international projects involving water supply and sewerage.

New Starters

Dianne Flett has commenced work as the CRCFE's new Projects Manager. Dianne is based at UC and can be contacted on (06) 201 5267 or email, diflett@lake.canberra.edu.au.

Dr Ben Gawne has started work at the Lower Murray Laboratory in Mildura which was established by Support Committee for the Establishment of a Lower Basin Laboratory and the CRCFE.

Dr Gawne has winged his way from the United States to take up the new position which will include investigating algal growth, river productivity and management of the Menindee Lakes System. He brings with him several years of research experience, including 3 1/2 years of work on lowland rivers in Nebraska, USA.

A technician and part-time administrative officer are expected to be appointed to work in the laboratory in the near future.

Development of predictive model for the National River Health Program

by Richard Norris

Richard Norris and Paul Blackman travelled to England to meet with John Wright, Mike Furse and Ralph Clarke at the British Institute for Freshwater Ecology, River Laboratory in Dorset and later with Ruth Cox and Dorian Moss at the Institute for Terrestrial Ecology.

These proved to be very useful and resolved a number of important areas with respect to developing the software to run a predictive model for Australia.

The British have expended much effort on assessing the sources of error and bias in the RIVPACS approach. This has been recorded in reports to the National Rivers Authority (NRA) which sells the reports over which the IFE has no control. Relevant reports are being requested from the NRA. Errors for observed number of taxa include sampling, identification (bias if consistent with individual people) and data entry. Errors for calculated expected number of taxa mostly relate to the O/E natural variation.

Development of RIVPACS II to RIVPACS III has largely involved inclusion of additional reference sites from sources outside the initial RIVPACS sampling, eg. special projects and sites otherwise defined as reference. This increased sites from 438 used in RIVPACS II to 614 used in RIVPACS III.

After much testing it was decided to continue with TWINSPAN classifications with the χ^2 because it was desired to emphasise the number of taxa in common between sites. Therefore, the statistics weights for similarities (taxa in common) rather than differences. UPGMA was used with β = -0.5 and also proved to be successful. CANOCO followed by K - means gave good group predictions but performed poorly predicting O/E on new sites. The main reason was that spatially close sites come out together and new sites were not predicted well on this basis.

Testing showed the two best methods to be TWINSPAN and K means after PATN SSH with 6 axes.

614 sites used in RIVPACS III yielded 35 groups with a 50% error with resubstitution using the TWINSPAN groups. Whether resubstitution or cross-validation is used really doesn't matter because probability of group membership of a test site doesn't rely on either. This is done post Discriminant Function Analysis (DFA) using test site data in Canonical Discriminant Function space.

To include abundance data (at least rank order abundance) 'Pseudofamilies' are used to for log categories of abundance but if higher levels of pseudofamilies used then the lower levels are automatically included. This latter step must be done because otherwise the different abundance categories would be mutually exclusive when predicted, thus leading to errors.

Calculating predicted indices

When the predicted BMWP and ASPT scores are calculated the scores for the predicted taxa used are multiplied by the by the probability of taxon occurrence at the site. Therefore the score is weighted.

Grouping sites

RIVPACS has only a single classification for the whole of Great Britain. The classification is done at species level to give site groups. The SAME groups are then used at genus or family level (it was not done this way in the 1984 papers). Therefore, predictions can be done at any taxonomic level because taxon occurrence is determined by test site probability of group membership. The probability of occurrence at whatever taxonomic level is possible.

Criteria were set for eliminating reference and test sites

Reference sites are checked by running them back through the model developed from them and checking for those below two standard deviations from the mean Observed/Expected ratio. These sites are reviewed and it is determined whether they might be unexpectedly impacted, improperly sampled, or represent a habitat type that

is under-represented in the data base. Action is taken appropriate to the problem ascertained the site will be eliminated, resampled or more of that type added to the data base.

North American Benthological Society 1996
Annual Conference Kalispell, Montana

Richard Norris and Paul Blackman, from the CRCFE at the University of Canberra, travelled to the North American Benthological Society 1996 Annual Conference to conduct a technical workshop with Trefor Reynoldson (Canada Centre for Inland Waters and Bob Bailey (University of Western Ontario). The full-day workshop on was on study design and data analysis for biological water quality assessment. Reynoldson and Rosenberg presented work on study design while Norris discussed data analysis and predictive models and Bailey talked about alternative approaches to data analysis. A hands-on computer workshop with machines networked on site occupied the afternoon session.

The morning session was open house and was attended by over 200 people many of whom ended up sitting in the aisles and hanging over the balcony. About 80 people attended the afternoon workshop. Paul Blackman did an exemplary job in setting up the network and ensuring it functioned virtually trouble free. Feedback from both those attending and the NABS technical committee has been extremely positive.

A workbook was provided on-line on the internet and was also sold in hardcopy to those attending. This included detailed versions of the talks and a computer disk with data sets and programs for running predictive models.

ISSUES IN LIMNOLOGY

Water industry needs "professionalism"

These were the concerns expressed by Professor Peter Cullen, at the 23rd Hydrology and Water Resources Symposium held at the Wrest Point Convention Centre in Hobart. Professor Cullen is Director of the Cooperative Research Centre for Freshwater Ecology (CRCFE), based at the University of Canberra.

While Australia's rivers and streams are dying from overuse and much abuse, the country's water industry is disintegrating. Water research is being driven by fashions, corporate memory is being lost as government departments continually re-organise and fear of redundancy is creating a culture of sycophants. Professionalism, he said, had been eroded by turbulence within the water industry which seemed to be on a path of continual restructure. Meanwhile, professional bodies had been deafeningly silent as the industry's infrastructure was dismantled around them. Unless professionalism was rediscovered, he said, Australia's precious freshwater supplies would be condemned by ill-informed decisions. "There are a number of wonderful stories about the new manager desperately trying to find displaced employees who might remember how to manage our systems in drought, flood or even when major pipes breaker Prof Cullen said. "Some managers appear proud of their ability to make decisions with inadequate information, and see this as the art of the manager," Prof Cullen said. "However, managers who can't be bothered finding out what is known, or who are inadequately trained for the job they are doing, are in my view negligent." Some water agencies, for example, had adopted strong positions on issues such as the use of non-phosphorus detergents despite their lack of understanding of the science, the international experience or of the ecological system with which they were dealing.

The water industry had been slow to adopt the knowledge generated by research. It was sometimes 20 years before technologies, such as multi-level offtakes on storages and fish passages on weirs, were accepted and used by water management agencies. "Fashionable solutions" to water quality problems also tended to dominate the water industry, discouraging the development of alternative and perhaps better technologies. The use of wetlands in totally inappropriate situations was an example. "These solutions get oversold by advocates, adopted by the ignorant and the lazy and condemned by almost everyone when they fail," Prof Cullen lamented.

The tightening of governmental purse strings had also prompted some agencies to step outside their area of expertise in the chase for research grant's. This often resulted in "shoddy research". Prof Cullen warned that a lack of technical expertise in the water industry and ill informed decisions could lead to similar environmental problems in the Lake Eyre Basin as those which now plagued the Murray-Darling Basin. The current proposal to extract water from Coopers Creek (which drains into Lake Eyre) in

Queensland for cotton irrigation raised highly technical questions in a system that had been little studied, he said. The impact of interfering with channel flows in arid and semi-arid rivers would possibly be greater than in temperate region rivers.

Increasing collaborative work across agencies, Prof Cullen, suggested would ensure "appropriate skills were assembled to do the job". It would also encourage more stringent review of the procedures and technologies currently being practiced within the water industry. Prof Cullen welcomed, however, last week's decision by the South Australian and Queensland governments to jointly manage the Lake Eyre Basin, saying it was a step towards improved management of the Basin.

CRC Media contact: Karen Markwort.(06) 201 5369

ARTICLES

WSL CORPORATE PROFILE

1. *Ownership, Origins and Size*

WSL Consultants Pty Ltd is an Australian owned, multi-disciplinary professional practice providing specialist independent laboratory and consulting services in environmental science and engineering.

The Company was established in 1963 by C.D. Parker who had been Chief Chemist and Bacteriologist at the former Melbourne & Metropolitan Board of Works and who had developed a national and international reputation in the water industry.

The current size of the organisation is some 40 professional and support staff.

2. *Accreditations*

Our chemical and biological laboratories have been NATA registered since 1976. The current terms of our chemical and biological NATA registrations are extensive and include the first registration for the performance of zooplankton identification and enumeration.

We are also accredited by the Department of Health and Community Services through NATA for analysis of potable water supplies.

Our commitment to quality has recently been demonstrated by our selection by NATA as an Australian laboratory to participate in an International Measurement Evaluation Programme (IMEP) for analysis of trace elements in water. This programme is conducted by the Commission of the European Communities - Institute for Reference Materials and Measurements (IRMM) based in Geel, Belgium.

3. *Consulting Arm*

In addition to the Company analytical services, we provide consulting engineering and scientific services for all stages in the project development cycle through to operation and monitoring. Consulting services include:

- Strategic and feasibility studies
- Conceptual and detailed design
- Microbiological, Chemical and Biological Consulting
- Project administration and supervision

- Construction management
- Trade waste policy and management
- Environmental audit and management systems

Our unique multi-disciplinary nature together with extensive laboratory pilot facilities enables us to develop and test innovative conceptual designs, thus ensuring that our technical solutions are the most cost effective and suitable for the particular applications.

5. *Project History*

Part of our core business is the development and performance of monitoring programs in water and wastewater treatment plants and estuarine, riverine and marine environments. Many of these programs which have traditionally included chemical, physical and psychological and microcrustacea are being extended to include assessment of macroinvertebrate populations where relevant.

Examples of WSL project experience follow.

Environmental Projects

- Assessment of the impact of the Warrnambool wastewater treatment plant outfall on the marine environment
- Formulation of a blue-green algae emergency response plan for water supply and wastewater systems for the Alpine Shire, Victoria
- Assistance in the formulation of a blue-green algae emergency response plan at the Daldy Road Wastewater Plant, Shepparton
- Participation in multi-national consortium for revision of Sao Paulo Water Quality Masterplan
- Participation in Water Quality Management study in the Texas Coastal Zone USA
- Goulburn River Water Quality Study for Goulburn Valley Regional Water Authority
- Nerang River estuary water quality study for Gold Coast City Council
- Port Phillip Bay heavy metal contamination study
- Review of Australian Water Quality Criteria for Australian Water Resources Council

Environmental Audits and Assessments

- Commonwealth of Australia:
  - Naval Base Nowra - HMAS Albatross
  - Ordinance Factory - Maribyrnong, Victoria
  - Explosives Factory - Mulwala
  - Reserve Bank of Australia
  - Telecom Industries
- Government of Brazil
- Ansett Transport Industries
- Hoechst Australia Limited

6. ***Resources***

WSL has a high commitment to quality in all aspects of its work and is currently working towards accreditation to ISO9000/AS3901 standards.

WSL operates from premises in Richmond (Victoria) which is well resourced with support staff, computer and communications, personnel and equipment.

WSL has representation on the Australian Water and Wastewater Association Federal Council.

Macroinvertebrate Subconsultants

Due to an increased workload, WSL Consultants are seeking appropriately qualified and experienced organisations or individuals to act as subconsultants on a range of marine and freshwater macroinvertebrate studies. Respondents should outline relevant qualifications and experience in all aspects of macroinvertebrate work including study design, sample collection, sorting and identification, and multivariate data analysis and interpretation. Macroinvertebrate project experience including MHRI work should be included. WSL is a Melbourne based firm of Scientists and Engineers which has been engaged in Water, Wastewater and Soil Analysis and Environmental Consulting for over 30 years.

Further Details: Julie Rissman, WSL Consultants, Melbourne Vic.

Telephone (03) 9429 4666, Fax (03) 9429 4666

E-mail WSLcon@ozemail.com.au

COMPUTER COUNTING SOFTWARE

I have developed some counting software that may be of interest to any bug pickers or cell counters out there. This software was developed to assist in the sorting/enumeration of stream invertebrate samples, but may be useful to any of you that routinely use multi-element laboratory counters.

COUNTER v3.3 is a DOS software program that uses an IBM compatible computer as a multi-element digital lab counter. Keyboard keys are assigned to up to 120 user configurable objects. COUNTER keeps a database of counts for these objects for up to 998 samples that can be exported as an ascii file and imported into most spreadsheet programs and statistical software. Count data, objects and key assignments can be edited at any time, and multiple databases can be maintained on the computer. The user can switch between samples or databases at any time. COUNTER uses a 3 tier data backup strategy to maintain the data. Data integrity is maintained even in the event of power failure. All database backing up is automatic.

COUNTER runs in DOS to make use of the many IBM XT and 286 computers that are gathering dust in laboratories and are now worth far less than mechanical laboratory counters (our last 5 element counter was $500.00, an IBM 286 is now about $50!). All you need is enough bench real estate for the screen and keyboard (we stick the computer itself under the bench) unless you have a notebook computer.

The program costs $60 Australian for a single use license and A$150 for an unlimited site license. All proceeds are paid through Monash University and go towards my current research programs in freshwater ecology as part reimbursement for my time spend programming COUNTER. I do not receive any payment whatsoever..

All registered users will be automatically sent FREE updates whenever there are bug fixes or features added.

If you are interested in seeing an evaluation copy (with no ability to export the data) send me an email with the subject: "COUNTER EVALUATION" and you will be sent an evaluation copy of the program electronically. Call me (03) 990-55623 if you do not have access to e-mail and I'll send you out a copy on disk.

Shane Brooks

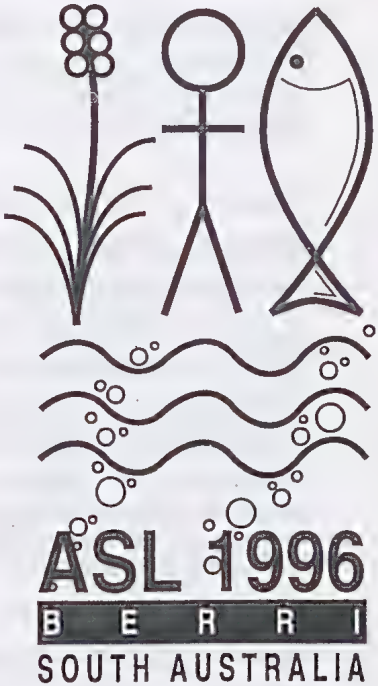
Shane.Brooks@sci.monash.edu.au
Dept. Ecology and Evolutionary Biology
Monash University, Clayton 3168, Australia

BERRI 1996

35th Congress 1996
&
Biomanipulation Workshop

Berri
South Australian Riverland

September 29 - October 3



Contact:
Email: ASL96@botany.adelaide.edu.au

ASL96
Department of Botany
University of Adelaide
Adelaide SA 5005

Abstracts and Registrations Close
26th July 1996

FIELD TRIP INFORMATION

Post Conference Tour Update:- The Flinders Ranges Trip

The Flinders Ranges are a unique inland mountain range 200-700 km north of Adelaide in South Australia. The ranges are well known for their spectacular geology and interesting flora and fauna. They also contain many outstanding streams and springs which provide a pleasant contrast to their semi-arid surroundings.

Itinerary

Depart Berri 8 am Thursday October 3

Return Adelaide 5 pm Sunday October 6

On Thursday morning we travel to Clare for wine tasting and lunch in one of Australia's premier wine regions. After lunch we travel through the Southern Flinders Ranges via Melrose and Quorn. Accommodation is in shearers' quarters on a station just North of Wilpena Pound (BYO sleeping bag, pillows and pillowcases provided). From Friday we visit Wilpena Pound, Brachina Gorge, Parachilna Gorge, and Chambers Gorge. We also explore a number of lesser known but equally spectacular locations where we have the good fortune to do research. The limnological focus of this trip will be on the springs and streams of the area. We will also have the opportunity to examine the geology, terrestrial flora and fauna and the Aboriginal and European history of the Flinders Ranges. BBQ dinner Saturday night, lunch on Friday and Saturday and all breakfasts are provided. Other meals will be on a buy your own basis at local pubs and other watering holes.

Numbers We need at least 15 people with a maximum of 30

Cost $170.00 (The cost of the trip is $10 greater than our original estimate)

Money We require an $85.00 deposit by Friday, August 9. The balance will be due by Friday, September 20. If the trip is cancelled due to lack of interest all money will be refunded. Anyone withdrawing from the trip after August 9 may forfeit their deposit but we will try to avoid that.

Cheques can be made out to Australian Society for Limnology Field Trips, and sent to Sam Wade at the address below. You can also send your deposit with your registration but please make out a separate cheque for the field trip deposit, and clearly mark it as a field trip deposit. This will make our job easier when it comes to banking.

Organisers

Sam Wade
Department of Zoology
University of Adelaide
Adelaide SA 5005
Email swade@zoology.adelaide.edu.au
Fax 08 3034364

Peter Schultz
Australian Water Quality Centre
PMB 3
Salisbury SA 5108
Email peter.schultz@sawater.sa.gov.au
Ph 08 2590336 Fax 08 2590228

ANNOUNCEMENTS

THE OTHER 99%
- THE CONSERVATION AND BIODIVERSITY OF INVERTEBRATES - SYDNEY, 1997.

First Announcement

The third meeting on the Conservation and Biodiversity of Invertebrates will be held in Sydney, 9 -12th December, 1997. The objective of this meeting will be to demonstrate the importance of invertebrates in biodiversity research and in nature conservation.

Organising Committee

Gerry Cassis (Phone (02) 320 6346); Pat Hutchings (Phone (02) 320 6243);
Richard Major (Phone (02) 320 6183); Winston Ponder (Phone (02) 320 6120).

Mailing address for all organisers:

Australian Museum,
Invertebrate Biodiversity Conference,
6 College Street,
SYDNEY NSW 2000
Fax (02) 320 6050 Email:- invert@amsg.Austmus.oz.au

Probable Symposia Topics

1. Assessing the Other 99%
   (Understanding and assessing invertebrate diversity in conservation decision making:- rapid biodiversity assessment (RBA), taxonomic sufficiency, survey, monitoring, endemism, key groups, indicators etc.)
2. Describing the Other 99%.
   (Methods and approaches to describing the taxonomy, distribution, biology and ecology of Australia's invertebrate fauna, with a view to better management.)
3. Invertebrate Conservation through Legislation and Policy
   (Incorporating invertebrate biodiversity into legislative and policy processes: what are current shortcomings and barriers and how can these be overcome - guidelines and operational decision-making rules for policy makers.)
4. The Invertebrate Agenda
   (Not only do the public and media need to be made more aware of the importance of invertebrates, but they also need a much higher profile in scientific and educational institutions. The role of the media, schools, universities, conservation organisations, local conservation groups and specialist societies.)

There will also be contributed paper sessions and posters

Workshop

"Use of invertebrate data in national and state biodiversity strategies" - to be held on 12th December.

If you want to receive the second announcement please fill in this form and return it to:

Australian Museum
Invertebrate Biodiversity Conference
6 College Street,
SYDNEY NSW 2000

by August 31st. (1996)

THE OTHER 99% - The Conservation and Biodiversity of Invertebrates -

Name:.....

Postal Address:.....

.....

.....

Fax:..... Phone:.....

Email:.....

I wish to present a paper in (Circle one):

Symposium 1 2 3 4
OR Contributed paper session,
OR a poster

Tentative title and/or subject

I wish to participate in the Workshop Yes No
Student: Yes No
Will you need accommodation? Yes No

Participants are urged to consider giving a poster as the number of oral presentations will be limited.

ASL ON THE WEB

We now have our very own ASL Home Page thanks to Michael Douglas.

The address is:

http://www.ntu.edu.au/science/mdouglas/asl_home.html

At present its creation is in the very early stages so please send comments and suggestions to:

mdouglas@bligh.ntu.edu.au

well done Dougo!

Wanted

Zeiss Research Microscopes

Wanted to buy - Zeiss Standard Universal, PM1 or PM2 compound research microscope and Zeiss Stemi or Wild dissecting microscope. Respondents should include a list of attachments and lenses.

Further Details: Julie Rissman, WSL Consultants, Melbourne, Vic.
Telephone (03) 9429 4666, Fax (03) 9429 4666
E-mail WSLcon@ozemail.com.au

CSIRO Journals

Subscriptions for CSIRO Journals must now be sent directly to CSIRO and **NOT** with your ASL Membership.

As an ASL Member, however, you will still receive CSIRO journal subscriptions at the discounted price.

RAMSAR PLEDGE

Non-Governmental Organisations
Brisbane Pledge of Support for the Ramsar Convention

Non-governmental organisations (NGOs) from all parts of the world are strongly committed to the achievement of the Ramsar Convention's objectives. We pledge ourselves, within the limits of our resources, to work together in partnership with the Bureau and Contracting Parties to conduct activities such as community-based education, information and empowerment programs, as well as implementing field-level wetland conservation, restoration and wise use projects. We will track our contribution to implementation of the Convention over the next three years, and report achievements to the next Conference of Parties in 1999.

While recognising that the Contracting Parties bear the primary and unequivocal responsibility for implementation of the Convention, we commit to:

- Striving to prevent any further degradation or loss of wetlands.
- Promoting or carrying out inventories of wetland resources, and monitoring status and trends in the ecological character of wetland sites and the catchments that surround them.
- Promoting and participating in the restoration of degraded wetlands and entire catchments.
- Continuing to work with governments at all levels to establish community-based education, information, training and management programs, in order to adequately convey the ecological, economic and cultural values of conservation and wise use of wetlands.
- Working with private landholders at wetland sites and in surrounding catchments to promote land use activities that are compatible with wetland conservation and wise use, communicating with landholders the value of wetlands, and seeking opportunities for landholders to share in the economic benefits associated with ecologically sustainable use of wetlands.
- Facilitating the development of collaborative relationships between NGOs, local communities, indigenous peoples, governments, educational institutions and the private sector to promote conservation, restoration and wise use at the field level.
- Assisting local communities and indigenous people in accomplishing the conservation of their wetlands and ecologically sustainable use of their resources, while helping to improve the quality of their lives and ensuring that they share in the economic benefits associated with wetland conservation.

- Establishing exchange programs and twinning projects to transfer conservation tools and lessons learned at wetland sites to communities around the world.
- Seeking funds from individuals, organisations, foundations, corporations, multi-lateral lending institutions, and government agencies for Convention implementation.
- Working vigorously to encourage Contracting Parties to fulfil their obligations under the Convention, monitor and report on the Parties' progress, and recommend areas in which the Parties' performance might be strengthened. While some Parties have been unable to meet their obligations in the past, we anticipate that even closer cooperation with the world's NGO community will create opportunities for greater achievements in the future.

We urge the Ramsar Bureau and Contracting Parties to recognise community-based, field-level actions as a high priority for implementation of the Convention, and to join us in our efforts to increase the Convention's effectiveness in conserving the world's wetland resources through local action.

NEWS FROM FASTS

The revised FASTS Policy Document will be launched at Parliament House on Tuesday June 18 at 11 am, with formal presentation to Minister Peter McGauran. An invitation will shortly be sent to all Member Societies as well as relevant MPs and prominent representatives of science and technology organisations.

1. Working with the new Government

There is a war of rumour and speculation in government circles in Canberra, and it will continue right up to Budget Day on August 20. It is a time when kites are being flown and waters tested, to gauge just what reaction unpopular policies are likely to get.

The Government is walking a thin line. It came to office promising new standards of honesty and probity, and saying that all election promises would be honoured. Now there are strong messages coming out that these promises are being reviewed, in light of the $8 billion "black hole".

It is in danger of being tagged "just another Government."

Ministers are confirming nothing and denying nothing, using the standard line of all Governments that things will be made clear on Budget night. And in some cases it seems that Ministers are trying to cause the maximum disturbance and uncertainty in their portfolio areas - the University sector is one such case.

Minister for Science Peter McGauran has charted a safer path. FASTS has found him open to suggestions and ideas, even if he is not able to give pre-Budget commitments. Other science groups have also been impressed with his handling of the portfolio to date.

But as FASTS said to Minister McGauran last week, the real judgement will have to be reserved until Budget night, when the S&T community finds out how successful he has been in protecting his portfolio against the economic rationalists in Treasury and Finance.

2. Protests and actions

The FASTS media conference at Parliament House on Friday May 31 brought together science groups and the National Farmers Federation to ward off rumoured cuts to S&T funding.

This sort of "third-party endorsement" by the NFF of the value of S&T is particularly important in Budget discussions, and avoids the charge that science and technology are self-serving.

The event was a major news item on television news that night, featuring on ABC and Channel 9 and 10 news through the evening. It was on radio news, and gained some print media coverage.

Spokespersons were:
Dr Joe Baker (FASTS); Dr Wendy Craik (National Farmers' Federation); Dr Ray Akhurst (Aust Soc of Microbiology); Professor Derek Robinson (Aust Mathematical Society and AMSC); Professor Bob Crompton (Aust Institute for Physics); Dr Keith Boardman (Academy of Science); Dr

Mark Sceats (CRCs Association); Mr Robin Groves (Aust Science Teachers Assoc); Dr Graeme Mann (Aust Soc for Medical Research)

3. University Challenge

The University sector also held a highly successful media event in Parliament House on Monday May 27, with FASTS playing a prominent role in putting the event together. The creation of an historic Alliance of students, staff and administrators was announced, with all groups joining to protest threatened cuts to the University sector.

The event captured a colour photo on the front page of the Sydney Morning Herald, and coverage in other major papers. My advice to the Minister to heal the rift between herself and the University sector was carried in the Canberra Times and the Age.

Further actions are planned by the Alliance, including a Press Club lunch, close lobbying of MPs, and other media events.

4. Revised Policy Document

Thanks all the Members who commented on the draft Policy Document circulated last month. It is in its final stages of preparation, and I hope to see as many as possible of you at the launch on June 18 in Canberra.

It will be a good opportunity to indicate the strength of the S&T community to our new Minister, and to meet others with a strong interest in science and technology.

5. FASTS on the Web

The FASTS Web page contains all the basic information, including a list of Member Societies, contact points, the Policy Document, relevant speeches by politicians, and copies of our media releases.

It also indicates links to the Web sites of our Members Societies. If your Society has a Web site and it is not listed, let Graham Johnston know! He has generously volunteered to look after the FASTS site, and his address is: grahamj@extro.ucc.su.oz.au

The Web address is: http://bimbo.pharmacol.su.oz.au/fasts/fastshome.html

6. ANZAAS Congress in Canberra

I have been asked to Chair the final plenary session, to bring together a day-long discussion on science policy. A range of prominent speakers is offering their thoughts on how S&T can best be utilised by Australia.

Minister McGauran will be there, and the aim of the discussion is to suggest policy directions for the Government to consider.

7. Parliamentary Standing Committee on Industry, Science & Technology

Membership of this Parliamentary Committee was announced on Friday, and is: Hon B. Reid (Lib, Bendigo) Chair Mrs F Bailey (Lib, McEwan); Mr R Baldwin (Lib, Paterson); Hon D Beddall (ALP, Rankin) Deputy Chair; Mr R Broadbent (Lib, McMillan); Hon M Evans (ALP, Bonython); Mr R Evans, (Lib, Cowan); Mr J Forrest (Nat, Vic); Ms T Gambaro (Lib, Qld); Mr H Jenkins (ALP, Scullin), Mr A Morris (ALP, Newcastle); Mr P Nugent (Lib,

Vic); Mr G O'Connor (ALP, Corio); and Mr P Zammit (Lib, NSW)

8. Meeting our Members

I have had good meetings this month with members of the Australian Institute for Mining and Metallurgy, the Australian Society for Medical Research, and other groups involved in the media conference at Parliament House.

Please contact the FASTS office if you would like to arrange a meeting. At various times in June I will be in Sydney, Ingham, Townsville, Brisbane, Hong Kong and Bundaberg.

Joe Baker
President

CONFERENCE REPORTS

ASL SIGNS THE PLEDGE AT RAMSAR CONFERENCE!

It wasn't the alcoholic pledge, you'll be relieved to hear. On behalf of ASL, after consultation with that well-known paragon of sobriety, our illustrious Vice-President Max Finlayson, I signed the Non-governmental Organisations Brisbane Pledge of Support for the Ramsar Convention (*see text in Ramsar Pledge section of this Newsletter*). I was at the Conference of Parties to the Ramsar Convention as the official observer for the ASL, and very interesting it was too. For those who aren't inundated by wetland trivia, the conference was held in Brisbane 17-27 March 1996 for the countries who are signatories to the Convention on Wetlands of International Importance Especially as Waterfowl Habitat, called the Ramsar Convention after the site where the convention was drawn up, in Ramsar, Iran. It is also the oldest international conservation treaty by quite a long stretch, now being 25 years old. Ninety-three countries are now signatories, and there are over 775 Ramsar sites, covering over 53 million hectares.

My biggest impression of the conference was that the discussions you saw were only the tip of the iceberg. There were little huddles of people everywhere, all the time, and ad-hoc working groups redrafting resolutions to all hours. As I was an observer, this wasn't a problem, but Max (on the official Australian delegation) looked a bit worse for wear once or twice (I'm charitably thinking it was pressure of work). Most of the conference sessions were quite dull and reasonably formal. Only statements by countries and the big four NGOs were 'official'. Others had to have their suggestions picked-up by either of these groups. I attended the technical sessions on defining 'ecological character' and 'change in ecological character'; interactions with the Convention on Biological Diversity and the World Bank; and criteria for identifying wetlands of international importance.

So what is happening in the Ramsar wetland world? The Ramsar signatories agreed to put more emphasis on coastal wetlands and coral reefs, and peatlands, all under-represented as Ramsar sites. Major initiatives such as the Mediterranean wetlands collaboration MedWet will continue, plus the East Asian-Australasian Flyway was established as a new initiative, the Brisbane Initiative. Another criterion based on fish has been added to the three existing (based on supporting waterbirds, importance of wetland, and representative type). The budget and work program sessions were interesting in a perverse sort of way, with rich countries crying poor, and the poor countries saying that they couldn't do much for wetlands without funding. The best excuse was from Angola, who said that they couldn't do anything because all their infrastructure had been destroyed in the war and wetlands were full of mines (so what's our excuse?). The wooden spoon goes to Indonesia for saying 'we have no indigenous peoples'.

Last, but not least, I 'launched' the ASL Wetlands Policy document, which went down well, considering the amount of other material around. It looks and sounds very good, and lots of people took a copy, even seeking me out to get some! Congratulations to Pierre Horwitz and the wetland working group.

For more information about Ramsar, contact me (Gillian Dunkerley) on:

Phone: (02) 795-5379,
Fax (02) 795-5004
e-mail DUNKERLEY.GILLIAN@epa.nsw.gov.au.

I won't send any paperwork, though, as there is tonnes of it. Or contact ANCA as the co-ordinating agency.

Conference Reports Wanted

Please send reports from the following conferences (and any others!!) for the September Issue of the ASL Newsletter!!!:

- NABS '96
- Ecology Society of Australia, Townsville '96
- INTECOL V, Perth '96
- Second World Fisheries Congress, Brisbane '96
- ASL, Berri '96

CONFERENCE CAPERS

AUSTRALIA 1996

- **Australian Society for Limnology**, 29 September to 2 October 1996, Berri, South Australia. Further information available in the March 1996 issue of this Newsletter.

- **Sixth International Behavioural Ecology Congress**, Canberra. 29 September to 4 October 1996. Information: isbe6@anu.edu.au, or to ISBE6, Attention Andrew Cockburn, Division of Botany and Zoology, Australian National University, Canberra ACT 0200 Australia.

- **The Scientific Savant in Nineteenth Century Australia: a Celebration of the Life, Times and Legacy of Ferdinand von Mueller**, 30 September - 1 October 1996. Part of the Commemorative Conference Royal Botanic Gardens, Melbourne. This conference will include sessions on Australia/overseas scientific links; Intercolonial relations in science; The scientific botanic garden; Scientific explorations in Australia; Darwinism in Australia; Philosophies in Australia; Amateurs and professionals in Australian Science and Government Science; Scientific education. For more information contact Dr Tim Entwisle Phone 03-655 2300, Fax 03-655 2350, Email entwisle@botany.unimelb.edu.au.

- **Beyond the Floras**, 3-5 October 1996. Part of the Commemorative Conference Royal Botanic Gardens, Melbourne. This conference will include sessions on The future of taxonomy; Techniques and developments of importance to systematic botany; Applications of taxonomic information. For more information contact Dr Tim Entwisle Phone 03-655 2300, Fax 03-655 2350, Email entwisle@botany.unimelb.edu.au.

- **Ecological Society of Australia** 9-12 July, 1996, James Cook University, Townsville, Queensland. Symposium sessions include: Frugivory and sees dispersal (Dr R.J. Green); Metapopulations (Dr Hugh Possingham); Ecology for everyone - communicating ecology to scientists, the public and politicians (Dr R.T.Wills); Ecological and evolutionary processes at species borders (Dr M. Blows); Replenishment of populations (Dr T. Hughs and Dr M. Keough); Bat Ecology (Dr G. Richards). Abstracts for Symposium Sessions are due by 12.4.96 and for Open Forum sessions by 26.4.96. Information from Mrs Barbara Kayrooz, Dept. of Zoology, James Cook University, Townsville, Qld 4811. Phone: 077-814858 Fax: 077-25 1570 Email: esq96@jcu.edu.au.

- **Second World Fisheries Congress**, 28 July to 2 August, Brisbane, Queensland. Information from Congress Secretariat, PO Box 1280, Milton Qld 4046. Fax: 07-3691512.

- **INTECOL V International Wetlands Conference**, 22-28 September 1996, Perth, Western Australia. Information from Dr Jenny Davis, Fax: 09-3104997 Email: davis@essun1.murdoch.edu.au.

- **Complex Systems: From Local Interaction to Global Phenomena**, 14 - 18 July 1996, Charles Sturt University, Albury, New South Wales. Principal Speaker will be Chris Langton, Santa Fe Institute. Anyone interested should complete an Expression of Interest form available on-line at http://life.csu.edu.au/complex/interest.html. Deadline of final submission of Abstracts of 12 April 1996. Further information from Prof. David Green, email: dgreen@csu.edu.au.

OVERSEAS 1996

- **Victoria Falls Conference on Aquatic Systems**, 15-19 July 1996, Elephant Hills Hotel, Victoria Falls, Zimbabwe. The conference is jointly organised by the Southern African Society of Aquatic Scientists, the River Basin Management Technical Division of the Water Institute of Southern Africa and the Water Engineering Division of the South African Institution for Civil Engineers. The conference will focus attention on the monitoring and management of our water resources, aiming to provide a multidisciplinary overview of aquatic ecosystems and resource management. Abstracts should be submitted by 30 June 1995. Enquiries and registration forms from Ms Lesley Stephenson, Conference Secretary, Ph: +27-011-716-5091, Fax: +27-011-339-7835, Email: stephenson@egoli.min.wits.ac.za.

- **Ecological Summer Summit '96**, 19 to 23 August 1996, Copenhagen, Denmark. The Summit incorporates the 10th International Conference on Ecological Modelling, the Intternational Conference on Ecological Engineering, the 2nd International Symposium on Ecosystem Healtth and the European Meeting on Ecological Economics. Further information from: Gill Spear, ECO-Summit '96 Secretariat, Elsevier Science Ltd., Conference Department, The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, UK. Phone: +44 1865 843643. Fax: +44 1865 843958. Email: g.spear@elsevier.co.uk. Web-server INFO accessible at: htttp://info.dfh.dk/ECOSUM96

- **River Restoration '96** - International Conference on Restoration and Management of Lowland River Systems, 8-12 September 1996, Silkeborg, Denmark. The four-day scientific programme will cover all aspects of restoration and management of lowland river and watershed ecosystems. Further information from: Hans Ole Hansen and Brian Kronvang, European Centre for River Restoration, Department of Freshwater Ecology, National Environmental Research Institute, Ministry of Environment and Energy, PO Box 314 Velsøvej 25, DK-8600 Silkeborg, Denmark. Ph: +45 89 201 400, Fax: +45 89 201 414, email: fvhoh@dmu.dk or fvbk@dmu.dk

OVERSEAS 1997

- **Multivariate Statistics - Complex Answers to Simple Questions?** Two day meeting December/ January 1997 under the banner of SETAC (Society of Environmental Toxicologists and Chemists) for those interested in ecotoxicology. There will be presentations of multivariate analysis of surveys, experiments and monitoring studies including a review and demonstration of current software. Contact: Dr Tim Kedwards, ZENECA Agrochemicals, Ecology and Soil Science, Jealott's Hill Research Station, Bracknell, UK RG42 6ET. Ph: 44 (0) 1344 414107, Fax: 44 (0) 1344 414124 Email: tim.kedwards@gbjha.ZENCA.com

- **The VIII International Conference on Harmful Algae**, 25-29 June 1997, Vigo, Spain. The topics of the conference will be: I. Ecology Oceanography Harmful Algae Events; II. Taxonomy; III. Toxins; IV. Management of Toxic and Harmful Algae Events; V. Pharmacological and Epidemiological Studies. The conference will comprise: i) Keynote lectures b) Oral and poster presentations; c) Round table discussions. Professor Ramφn Margalef, from University of Barcelona (Spain) will give the opening address. The scientific sessions will be held in the Cultural Centre "Caixavigo" in Vigo. Vigo is the most populous city of Galicia (NW Spain), base of the biggest fishing fleet in Europe and a major center for aquaculture and the seafood processing industry. The official language is English, which will be used for all presentations and documentation (except the second announcement, that will be in English and Spanish). DEADLINES: Submission of abstracts: December 15, 1996; Registration: 1 March 1997; Submission of manuscripts for review: April 20, 1997; Submission of manuscripts in publication format: 31 July 1997
  Further Information and Registration forms from: Beatriz Reguera, Conference Coordinator,
  Instituto Espanol de Oceanografia, Aptdo. 1552. 36280 Vigo. SPAIN.
  Fax +34 86 492351; e-mail: insovigo@cesga.es

- **Seventh International Symposium on Regulated Streams**, 25-29 August 1997, Tennessee Valley. The theme of this SISORS III is "mamaging regulated rivers for biodiversity". Primary sessions will focus on three main topics: (1) Rehabilitation of large rivers; (2) Terrestrial and aquatic interactions; and (3) Restoration of tailwater habitats. Contributed papers on any aspect of regulated flow eceology and management are also welcome for oral or poster presentation. Abstracts (<500 words) should be submitted by 20 December 1996. Selected papers will be published in Regulated Rivers. The conference will be held at the Chattanooga Choo-Choo Holiday Inn, Chattanooga, Tennessee, USA. Further information from Dr James B. Layzer, Tennessee Cooperative Fishery Research Unit, Tennessee Technological University, Cookeville, TN 38505, USA. Ph: 1-615-372-3094 Fax: 1-615-372-6257.

ASL VOLUNTEERS

The following people have volunteered to speak as experts on behalf of the ASL. If you wish to be included on the list contact:

Dr Richard Marchant (ASL Secretary)
Email: rmarch@pioneer.mov.vic.gov.au

The following members are prepared to speak on behalf of the ASL on their area of expertise.

Name	Area of Expertise	Contact Details
Prof A. Arthington	in stream flows, ecology of exotic fishes, conservation of rare fishes.	Centre for Catchment & Instream Res, Griffith University, Natham Qld. 4111. Phone (07)275 7403 , Fax: (07)277 3759
Dr P. Boon	bacteriological issues, wetlands.	Environmental Management, Victoria University of Tech., PO Box 14428 MMC, Vic. 3000. Phone (03)9365 2214, Fax (03) 9365 2465. email:boopa@stamail1.vut.edu.au
Dr A. Boulton	intermittent streams, hyporheic zones, Flinders Ranges	Ecosystem Management, University of New England, Armidale, NSW 2351. Phone (067)733760, Fax (067)732 769 email: aboulton@metz.une.edu.au
Dr M. Brock	temporary wetlands, aquatic plants	Botany Department, University of New England, Armidale NSW 2351. Phone (067)732 578, Fax (067)733 283 email: mbrock@metz.une.edu.au
Dr S. Bunn	stream ecology, ecology of riparian zones, biomonitoring	Faculty of Environmental Sciences, Griffith University, Nathan, Qld 4111. Phone (07)8757 407, Fax (07)875 7459, email: s.bunn@ens.gu.edu.au
Dr G. Closs	ecology and conservation of freshwater fish, upper Murray River	Environmental Management & Ecology, LaTrobe University, PO Box 963, Wodonga, Vic. 3689 Phone (060)583873 ,Fax:(060)583888 email:gcloss@awc-net.latrobe.edu.au
Dr T. Entwisle	taxonomy and ecology of freshwater macroalgae	National Herbarium of Victoria, Birdwood Ave, South Yarra, Vic. 3141. Phone (03)96552313, Fax (03)9655 2350 email: Entwisle@botany.unimelb.edu.au
Dr M. Finlayson	wetlands, Ramsar convention	Alligator Rivers Region, Office of Supervising Sci, Post Office, Jabiru, NT 0886 Phone (089)799 756, Fax(089)792 499 email:masf@eriss.erin.gov.au
Dr T. Grant	platypus biology	Biological Science, University of NSW, PO Box 502, Cronulla, NSW 2230
K. Hortle	impact of mining, impact of development in Se Asia and PNG on rivers	Environmental Management, 18 Sharrow Road, Mitcham, Vic. 3132 Phone and Fax: (03) 9872 4101

Dr P. Horwitz	conservation of freshwater invertebrates	Dept of Science, Edith Cowan University, Joondalup Drive, Joondalup, WA 6027. Phone (09)4055717, Fax: (09)300 1257 email: phorwitz@cowan.edu.au
Dr P. Humphries	fish ecology, in-stream flows	CRC Freshwater Ecology, MDFRC, PO Box 921, NSW 2640. Phone (060)43 1002, Fax:(060)43 1626 email: hump@watson.canberra.edu.au
Dr G. Jones	cyanobacterial blooms	CSIRO, PMB 3, Griffith NSW 2680. Phone (069)601563, Fax: (069)601600 email:gary@griffith.dwr.csiro.au
Dr P.S. Lake	stream ecology, conservation freshwater biota	Ecology & Evolutionary Biology, Monash University, Wellington Road, Clayton, Vic. 3168. Phone (03)9055 653, Fax:(03)9055613 email: p.s.lake@sci.monash.edu.au
Prof J. Laybourn-Parry	plankton microbial ecology, carbon cycling in lakes, Antarctic freshwater systems	Zoology Dept, LaTrobe University, Bundoora, Vic. 3083. Phone (03) 479 2278
Dr V. Matveev	plankton food webs, biomanipulation	MDFRC, PO Box 521, Albury, NSW 2640. Phone: (060) 431002, Fax: (060) 431626.
Dr R. Pearson	tropical freshwater ecology	Zoology Dept. ACTFR, James Cook, University, Townsville, Qld. 4811. Phone:(077)814 262, Fax: (077)79 6371
J. Puckridge	ecology of arid zone rivers, ecology of freshwater fish	Zoology Department, University of Adelaide, Adelaide, SA 5005. Phone (08) 3034455. Fax: (08) 303 4364
Dr N. Rea	wetland plant ecology, water regime, weeds and conservation	CSIRO Entomology, TERC, PMB44, Winellie, Darwin NT 0821 Phone (089) 221717, Fax: (089)221714, email: naomi@terc.csiro.au
Dr R. Shiel	planktonic & littoral microfauna, billabong ecology.	MDFRC, PO Box 921, NSW, 2640. Phone (060) 431002, Fax: (060) 431626
Dr L. Townley	: groundwater-surface water interaction.	CSIRO Division of Water Resources, Private Bag, Wembley, WA 6014 Phone (09)387 0329, Fax: (09)3878211
A/Prof K.F. Walker	Murray - Darling basin rivers	Zoology Dept, University of Adelaide, Adelaide, SA 5005. Phone (08)303 5595, Fax: (08) 3034364
Prof. W.D. Williams	Salt lakes	Zoology Dept, University Adelaide, Adelaide SA 5005. Phone (08)303 4455, Fax: (08) 3034364

BOOK REVIEW

S.A. Day, R.P. Wickham, T.J. Entwisle, P.A. Tyler. (1995) *Bibliographic Checklist of Non-Marine Algae in Australia* Flora of Australia Supplementary Series, Number 4. Australian Biological Resources Study, Canberra.

Many of us are well aware of the lack of good taxonomic work on freshwater algae in Australia. As a postgraduate student I have been eagerly awaiting this reference. Searching through keys for northern hemisphere taxa, it is good to have a reference with which some consistency in identification can be made for Australian waters.

The Bibliographic Checklist classifies algal taxa by family and division with a breakdown of species and their synonyms. These are linked with the author and the state in which the taxa have been identified. Such synonyms are useful especially with recent developments in classification of the Cyanophyta.

The inclusion of "grey" literature from government reports and unpublished theses, although broadening our insight into the overall diversity, includes many sources which are inaccessible, and may be unreliable without voucher specimens.

System references together with links with the state of collection would have been beneficial, especially collections from the Murray-Darling Basin, the Swan River Estuary etc. Also some discrimination of planktonic and attached taxa would have been appreciated.

I could not find a benefit in the figures which were not integrated with the main reference, so served for aesthetic purpose only.

This publication serves as a fundamental directory for anyone working with algae in Australia, but we still await a key to the non marine algae of Australia.

Adrienne Burns
Department of Zoology, University of Adelaide

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